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## Financial System Development and Real Sector Performance in Nigeria

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### Abstract

*This paper examines the relationship between financial sector development and real sector performance in Nigeria using data over the period 1986-2014. Owing to the dominant role of the banking sub-sector in the Nigerian financial system, it was adopted as proxy for the financial sector. Exchange rate, national saving rate, interest rate and financial depth were adopted as proxies for financial development while ratio of industrial output to GDP was adopted as proxy for real sector performance. Lending rate was adopted as the relevant interest rate for the study. Econometric method of the vector error correction model was used to estimate the magnitude and direction of the impact of the exogenous variables on the endogenous variable as well as the speed of adjustment of the system to short-run disequilibrium. The short-run estimate shows significant negative effect of national saving rate and financial deepening on the real sector. There is no evidence of significant effect of exchange rate and lending rate on the performance of the sector during the period of the study. Estimated long-run coefficients show significant negative impact of exchange rate and lending rate on real sector output. There is also evidence of non-significant positive impact of national saving rate and non-significant negative impact of financing deepening on real sector performance. This result indicates that as exchange rate becomes more volatile during the reform period, output of the real sector is adversely affected. On the other hand, though reforms associated with financial sector development in post-SAP era led to high lending rate, the real sector became more efficient in resource utilization and hence had higher productivity growth. Therefore, the study concludes that development of the financial system has supported real sector in Nigeria through efficiency gains from resource allocation and utilization.*

### 1.0 Introduction

One of the salient features of Nigeria's economic policy since attaining political independence is a conscious development of the financial sector through policies and reform initiatives aimed at stabilizing operations in the sector. For instance, from the early years of the nation's independence up to the mid-1980s, the sector was highly regulated with the government as a key player and regulator. The indigenization reforms, 1972-1976, encapsulated in the Nigerian Enterprises Promotion (NEP) Act, 1972 was designed to promote active participation of Nigerians and Nigerian government in the ownership and control of banks. To consolidate on the gains of the indigenization policy, the Financial System Review Committee, 1976 (popularly known as Okigbo Committee) was mandated to examine the adequacy, relevance or otherwise of financial institutions in the country as well as the capacity of the structure of the system to meet the development needs of the economy. A major financial innovation of the committee was the introduction of the rural banking scheme designed to mobilize rural savings, promote rural credit delivery and reduce rural-to-urban migration of funds and people thereby promoting the integration of rural financial intermediation (informal financial sector) with the formal banking sector, hence enabling the banking sub-sector to adequately support real growth. During the period, the financial sector (particularly the banking sub-sector) was heavily regulated.

Though these initiatives enhanced the development of the banking industry in Nigeria as shown by various indicators of banking development (see for example, Okafor, 2011), there is however not sufficient evidence that the industry has significantly supported development and growth of the Nigerian real sector. For instance, the Federal Government (1987) explains that pegging of interest rate (at low levels relative to the rate of inflation), contrary to expectation, did not achieve its desired goal of stimulating new investments, nor did it result in an increased industrial capacity utilization. Against this background, the structural adjustment programme (SAP) was implemented in the mid-1980s to restructure and redirect the Nigerian economy, eliminate price distortions and diversify the economy. With regard to banking, SAP sought to deepen banking development through deregulation of banking, liberalization of banking operations, promotion of competition in banking business thereby making banking operations more market-driven. However, SAP had unintended consequences on the operations of the real sector because with it came a regime of high and volatile exchange rate as well as high cost of domestic borrowings. The Federal Government (1989), for instance, explains that the adjustments in the foreign exchange rates led to a generalized increase in prices because of the high import content of our installed manufacturing production capacity, and thereby impacted adversely on many small-scale enterprises.

The study seeks to provide empirical evidence on the performance of the real economy in the post reform period. Empirical evidence on the finance-growth nexus has been largely dominated by studies on developed economies with developed financial markets and institutions. Evidence on the finance-growth relationship for developing economies like Nigeria is rather scanty and as has been the results of studies on developed economies, the results of empirics for Nigeria and most developing economies are mixed. For instance, while some find evidence of growth-propelling impact of financial



development (see for example, Ndebbio, 2004; Akinlo and Akinlo, 2007; Adegbite and Oke, 2008; Ogwumike and Afangideh, 2008; Olofin and Afangideh, 2009; Ogwumike and Salisu, 2012; Nkoro and Uko, 2013), studies by Nnanna (2004) and Nzotta and Okereke (2009) find that the financial sector has not supported real sector growth. With respect to causality, Kolapo and Adaramola (2011), Odeniran and Udeaja (2010), Osuji and Chigbu (2012) and Audu and Okumoko (2013) find bi-directional causal relationship between financial and real sectors of the economy.

## 2.0 Review of Related Literature

### 2.1 Conceptual Framework

According to Odife (1985), the financial system is the framework within which capital formation takes place. It is the framework within which the savings of some members of society are made available to other members of the society for productive investment through the process of financial intermediation. To Adegbite (2007) and Fitzgerald (2006) the financial system refers to the network of financial institutions/intermediaries, financial markets and financial instruments available in a given economy. In a broad sense, financial intermediaries could be banks or non-bank financial institutions like insurance companies, pension funds, mutual funds or unit trust funds, etc. Financial instruments are the means through which financial intermediaries mobilize and allocate financial resources from the surplus to the deficit units in the economy. These instruments could be short-term (for instance bank deposits, treasury bills, etc.) or long-term (bonds and equities) and are traded in financial markets. The financial market consists of the money and capital markets. The capital market is the framework of institutions that arrange for long-term financing while the money market is the framework for financial claims of less than one year to perhaps five years or less of maturity.

Financial system development relates to the number and variety of financial institutions, markets and instruments available in the financial system. The more they are, the more developed the system is considered to be. Financial development is measured by relating key macroeconomic indices of financial sector operations to the gross domestic product (Mohan, 2005). In Nigeria, banks are the dominant financial intermediaries and therefore exert a dominant level of influence in the financial development process through their fund mobilization and credit delivery operations (Okafor, 2011). Key indicators of banking development include total banking assets to GDP and total loans and advances to GDP. Real sector or real economy refers to the sector in which there are productions of goods and services through combined utilization of raw materials and other production factors such as labour, land and capital or by means of production process.

### 2.2 Theoretical Background

According to basic economic theory, under equilibrium conditions, realized investment must equal realized savings. But investment (I) is a function of marginal efficiency of capital (MEC) and interest rate (IR) while savings (S) is a function of interest rate. This theoretical relationship can be expressed as:

$$I = S \text{ or } I(\text{MEC}, \text{IR}) = S(\text{IR})$$

The above expression shows a direct or positive impact of savings on investment, an indication that higher levels of investment are associated with higher levels of human and physical capital accumulation. Schumpeter (1912) argues that through the basic services provided by financial intermediaries such as savings mobilization, project evaluation, risk management, delegated monitoring, cost mitigation, reduction of information asymmetry, allocation of funds to the most competent entrepreneurs, etc. they are able to promote technological innovation and hence economic development. However, Fitzgerald (2006) contends that the extent to which financial intermediaries are able to perform these functions depends on the level of financial intermediation (proxied as the depth of the financial system), the efficiency of the financial system (which according to Ziorklui (2001) is measured by the financial deepening impact of the banking system) and the structure or composition of the financial system (viewed in terms of number and variety of financial institutions constituting the structure).

### 2.3 The Finance-Growth Nexus: Theoretical and Empirical Review

A major objective of financial sector development is to promote efficient delivery of the financial intermediation role of banks and non-bank financial institutions based on the assumption that well developed and efficient financial markets offer a platform for effective mobilization and allocation of financial resources thereby facilitating the attainment of enhanced economic growth and development. However, opinions differ on the relationship between financial sector development and economic growth. While one group argues that financial sector development can promote economic growth by raising the level of savings, improving allocative efficiency of financial resources and promoting capital accumulation (see for example, Driscoll, 2004; Anad and Subrahmanyam, 2008; Arauyo and Minetti, 2007; etc.), another group however argues that the relationship between financial sector development and economic growth is rather passive in nature as the financial sector merely serves as a channel through which government monetary policy transmitted to the real economy (Benston and Smith, 1975) and contracts are implemented (Holmstrom and Tirole, 1998). Robinson (1952) had argued that it is the growth of enterprise that really precipitates growth and development in the financial sector, describing finance as the

handmaid of industrialization. Similarly, while King and Levine (1993a) show that development of the banking sub-sector in Europe was not only correlated with economic growth but was also a cause of long-term growth, Hao (2006) contends that banking system development correlates negatively with economic growth in China. On the other hand, Lardy (1998) argues that inefficient and repressive China's financial system which distorts optimal allocation of loanable funds cannot explain China's economic performance.

The relationship between finance and the real sector can be traced to Smith (1776) who argues that real growth in an economy is driven by activities of the financial system because increased production and specialization is facilitated by enhanced resource (credit) acquisition offered by the system. Also, Bagehot (1873) posits that the 19<sup>th</sup> century industrial revolution in Europe was propelled by the financial system which mobilized funds in unusually 'big form' for industry. Corroborating the views of Smith (1776) and Bagehot (1873), Schumpeter (1912) avers that technological innovation (a requirement for productivity growth) is facilitated by the financial sector through efficient resource mobilization and allocation. Schumpeter posits that a developed financial sector is absolutely necessary if entrepreneurs are to successfully engage in a process of innovation because translating innovative thinking (ingenuity) into real output has cost implications which may not be covered by entrepreneurs themselves. He argues that an efficient banking system is able to identify and fund entrepreneurs who have the greatest chances of successfully transforming innovative ideas into marketable products through innovative production processes. However, Robinson (1952) introduced a new dimension to the finance-growth nexus. She argues that it is rather the enterprise that really precipitates growth and development in the financial sector and that finance merely follows industrialization and not vice versa. Patrick (1966) serves as a link between the economic thoughts in Bagehot (1873) and Schumpeter (1912) on the side and Robinson (1952) on the other.

Patrick (1966) argues that finance-growth nexus cannot be determined independent of a country's development index. Patrick contends that at the early stage of growth, it is the financial sector that initiates and propels growth by providing financial instruments, arrangements and innovations which help the real sector to access funds for financing technological innovation (supply-leading hypothesis). However upon attainment of a certain level of economic development, Patrick argues, it is the real sector that drives growth in the financial sector by making demands on the financial sector which, in responding, is thereby moved forward (demand-following hypothesis).

Fitzgerald (2006) affirms the growth-inducing impact of the financial sector on the real sector but argues that the aspect of financial intermediation that impacts the real sector at any particular time, however, depends on the stage of development of the real economy. Fitzgerald contends that during the early stage of real development the depth or size of the financial system (measured by the extent to which the system supports the real economy) plays a lead role in the promotion of economic growth but as the economy moves to a higher level of real development, it is the efficiency of the financial system or its composition that will likely impact real growth the most. The controversy over the nature of relationship between real sector growth and financial sector development was further amplified by Calderon and Liu (2003) who identify three distinct levels of relationship between them. They argue that at the low level, the financial sector plays the vital role of providing the super-structure on which the initial take-off of real sector development is predicted while at the second stage, the relationship becomes a mutual one as both contribute to each other's growth. However, they argue that at the third level of relationship, the financial sector dominates again.

Mckinnon (1973) and Shaw (1973) allude to Patrick's supply-lending hypothesis but argue that the financial system can only perform its growth-inducing role more efficiently when it is free from the shackles of government regulation and the sector is at liberty to allocate funds to their best uses (financial liberalization). However, Adegbite (2003) puts up an argument in support of government regulatory measures in banking. She argues that as part of government's role as overseer of maximum welfare of the people, it has a social contract requiring it to ensure the flow of funds to industries and sectors not commercially viable but socially desirable and secondly, government needs to borrow at a cheap rate of interest for both physical and social infrastructural development necessary for economic growth. There is substantial evidence in Nigeria to think otherwise. Pegging of interest rate in Nigeria, contrary to expectations, did not achieve its desired goal of stimulating new investments and did not enhance capacity utilization in the real sector (Federal Government of Nigeria Budget Speech, 1987).

Failure of the regulated regime to propel real sector growth may be the result of inefficiency in credit allocation and utilization as well as inability of low interest rate to promote effective deposit mobilization in the economy since according to basic economic theory low level of savings brings about low level of investment. Evidence in the financial economics literature shows that while the weight of opinion suggests a near consensus that a well-functioning financial sector is a precondition for efficient allocation of resources and the exploitation of an economy's growth potential, empirical literature is less consensual on how and to what extent finance affects growth. For instance, Eriemo (2014) examined the impact of financial sector development on Nigeria's economic performance. The parsimonious error correction model shows significant positive impact of money supply and bank credit and significant negative impact of interest rate on GDP. Employing the vector error correction model, the study however shows significant negative impact of bank credit, interest rate and money supply on output. Ojeaga and Odejimi (2014) studied the effect of interest rate on bank deposits in Nigeria.



using data for the period 1989-2012. They find evidence of positive impact of liberalized or reformed interest rate on bank deposits. In a study of thirty-five countries covering a period of over one hundred years, Goldsmith (1969) finds significant positive relationship between the financial system and the real sector. Similarly, King and Levine (1993) find financial development a good predictor of growth in the real sector in a study of over eighty countries over a period of more than thirty years.

Rondo Cameron et al (1967) also confirm the growth-inducing role of the financial system (particularly the banking system) on the real economy for England, France, Belgium, Germany and Japan. Also, studies by Shittu (2012), Ndebbio (2004), Ogwumike and Salisu (2012), Nkoro and Uko (2013), Adegbite (2004 and 2005), Akinlo and Akinlo (2007), Adegbite and Oke (2008), Ogwunike and Afangideh (2008), Olofin and Afangideh (2009) produce evidence that growth in the real sector is driven by financial system development. However, studies by Nnanna (2004), Nzotta and Okereke (2009), De Gregorio and Guidotti (1995) could not find evidence that the financial sector has supported growth in the real sector. Some studies have extended the debate on the finance-growth nexus by introducing causality to the finance-growth empirics. Research findings in this area show that the controversy surrounding finance-growth nexus is far from resolved. For instance, while some studies have produced evidence of uni-directional causality from financial sector development to real sector growth (see for example, Odedokun, 1996; Christopoulos and Tsionas, 2004), others show that real sector growth causes development of the financial sector (see Odhiambo, 2008 and 2011; Liang and Teng, 2006; Coccoresse, 2008). Another group also finds evidence of bi-directional causality (see Wolde-Rufael, 2009; Abu-Bader and Abu-Qarn, 2008; Kar et al, 2011; Bangake and Eggoh, 2011; Hassan et al, 2011; Odeniran and Udejaja, 2010). An interesting observation from the above review is that as have been observed with theoretical arguments on the finance-growth nexus, results of research on the relationship between finance and real sector development have been as diverse as there are researchers on the area.

### 3.0 Methodology

Quantitative research technique based on *ex-post facto* research design was adopted for the study as it involves the use of available data on research variables to explain the extent to which they relate to the event. Data on exchange rate, national saving rate, lending rate, and financial depth (sourced from the publications of the Central Bank of Nigeria) were used to explain the performance of the Nigerian real sector in the post reform period, 1986-2014. The study adopted the econometric technique of vector error correction model. Time series properties of the data as well as their short and long-run dynamics were examined. The Augmented Dickey-Fuller (ADF) and Phillip Perron (PP) unit root tests were used to test the series for stationarity while Johansen & Juselius (1990) method was used to determine if there exists a long-run relationship between and among the variables. The vector error correction model (VECM) was used to capture the short and long-run dynamics of the variables.

### 3.1 Model Specification

The model adopted for this study expressed real sector output as a function of exchange rate, national saving rate, financial depth and lending rate. The implicit representation of the model is expressed as:

$$\text{OUTP} = f(\text{EXRV}, \text{SAVR}, \text{FINDEP}, \text{LR}) \dots\dots\dots (1)$$

Where;

OUTP = ratio of real sector output to GDP; EXRV = exchange rate

SAVR = national saving rate; FINDEP = financial depth

LR = lending rate

The explicit form of the model in equation (1) is expressed as:

$$\text{OUTP}_t = \beta_0 + \beta_1 \text{EXRV}_t + \beta_2 \text{SAVR}_t + \beta_3 \text{FINDEP}_t + \beta_4 \text{LR}_t + \varepsilon_t \dots\dots\dots (2)$$

Where;

$\beta_0$  = constant term;  $\beta_1 \dots \beta_4$  = coefficients of the exogenous variables;  $\varepsilon_t$  = error term

### 3.2 Variables/Proxies

**Real sector output:** The industrial sector was adopted as proxy for the real sector because its performance derives largely from technological innovation and capital accumulation. These two channels, among others, are the basic channels through which activities of the financial system translate to greater level of economic growth. Real sector output was taken as the aggregate output from crude petroleum and natural gas, solid minerals and manufacturing sub-sectors in a given year expressed as a ratio of the nation's GDP.

**Exchange rate:** This is the price at which a given unit of the domestic currency exchanges for one unit of a foreign

currency. For our purpose in this study, exchange rate volatility expressed as rate of change over successive periods was adopted as proxy.

**National saving rate:** This refers to total savings in an economy expressed as a percentage of its gross domestic product. It indicates the financial state and growth of the economy. Often the household is the major source of savings.

**Financial depth:** This is a measure of accessibility to financial services, expressed in this study as ratio of credit to private sector (CPS) to GDP. Specifically, it measures the extent to which the banking sub-sector supports the real economy

**Lending rate:** This is the rate at which the deficit units borrow from the banking sector. It is determined in this study as the average of prime and maximum lending rates.

### 3.3 Apriori Expectations

Based on economic theory, it is expected that positive relationships exist between real output, financial depth and national saving rate while a negative relationship is expected between real output, lending rate and exchange rate movements. This can be represented as  $\beta_1 < 0$ ,  $\beta_2 > 0$ ,  $\beta_3 > 0$  while  $\beta_4 < 0$ .

## 4.0 Data Analysis

### 4.1 Unit Root Test

The result of the unit root test based on Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests are presented in tables 4.1 and 4.2 below.

**Table 4.1: Augmented Dickey Fuller at Levels and first difference**

Variable	ADF Test @Levels	ADF Critical value @ 5%	Test @ First Difference	ADF Critical value @ 5%	Remark/Order
OUTP	-0.607091	-3.752946	-4.687125	-2.998064	Stationary/1(1)
EXR	-2.809629	-3.724078	-7.611245	-2.809629	Stationary/1(1)
SAVR	-1.474711	-3.699871	-4.250060	-3.711457	Stationary/1(1)
LR	-4.217132	-3.699871	-5.718607	-3.724070	Stationary/1(0)
FINDEP	-1.366013	-3.699871	-4.178491	-1.366013	Stationary/1(1)

**Table 4.2: Phillip Perrons (PP) Unit Root Test at Levels and first difference**

Variable	PP Test @Levels	PP Critical values @ 5%	Test @ First Difference	PP Critical values @ 5%	Remark/Order
OUTP	-2.534504	-3.699871	-11.03825	-3.711457	Stationary/1(1)
EXR	-6.433227	-3.699871	-18.79008	-3.711457	Stationary/1(0)
SAVR	-1.474711	-3.699871	-4.239729	-3.711457	Stationary/1(1)
LR	-4.210269	-3.699871	-13.23258	-3.711457	Stationary/1(0)
FINDEP	-1.378268	-3.699871	-4.033444	-3.711457	Stationary/1(1)

From the result of the unit root test shown in tables 4.1 and 4.2 it was observed that all the variables employed in the study are not stationary at their levels. This implies that some of the variables contained a unit root at their levels. However, all the variables achieved stationary trend at their first difference. They could therefore be modeled for plausible economic projections.

**Table 4.3: Co-integration Test**

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.711682	86.23496	69.81889	0.0014
At most 1 *	0.671137	53.89898	47.85613	0.0122
At most 2	0.420821	24.98404	29.79707	0.1620
At most 3	0.293525	10.78432	15.49471	0.2251
At most 4	0.065099	1.750183	3.841466	0.1859
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.711682	32.33598	33.87687	0.0755



At most 1 *	0.671137	28.91494	27.58434	0.0336
At most 2	0.420821	14.19972	21.13162	0.3489
At most 3	0.293525	9.034136	14.26460	0.2833
At most 4	0.065099	1.750183	3.841466	0.1859
Max-eigenvalue test indicates no co-integration at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

This study applied the Johansen and Juselius (1990) co-integration approach to determine evidence of long-run relationship among the variables in the model. Based on trace and max-Eigen statistics, the test result shows two co-integrated equations and at most one co-integrated equation respectively. This indicates that the variables do not have a tendency to drift apart, a further indication that the model is suitable for policy making. Having established existence of a long-run equilibrium relationship between real output and its determinants, the study adopted the vector error correction mechanism in order to ascertain the nature of the adjustment process within the system from the short-run to the long-run state. The result also shows the magnitude and direction of the impact of the independent variables on the dependent variable.

**Table 4.4 Vector Error Correction Model (Long-run estimate)**

Vector Error Correction Estimates					
Standard errors in ( ) & t-statistics in [ ]					
Cointegrating Eq:	CointEq1	EXR(-1)	SAVR(-2)	LR(-3)	FINDEP(-3)
OUTP(-1)	1.000000	-0.431226	0.055469	1.089897	-0.232865
		(0.10235)	(0.83485)	(0.25975)	(0.72872)
C	-63.61157	[-4.21309]	[ 0.06644]	[ 4.19598]	[-0.31955]
Error Correction:	D(OUTP)	D(EXR)	D(SAVR(-1))	D(LR(-2))	D(FINDEP(-2))
CointEq1	-0.817233	-0.979565	-0.372272	-0.691177	-0.309543
	(0.44970)	(1.21967)	(0.11614)	(0.46915)	(0.11298)
	[-1.81729]	[-0.80314]	[-3.20540]	[-1.47325]	[-2.73972]

Estimated long-run coefficients show significant negative impact of exchange rate and significant positive impact of lending rate on output. There is also evidence of non-significant positive impact of national saving rate and non-significant negative impact of financing deepening on real sector performance. This result further indicates that as exchange rate becomes more volatile, output of the real sector is adversely affected. On the other hand, though reforms associated with financial sector development in post-SAP era led to high lending rate, the real sector became more efficient in resource utilization and hence reported higher productivity growth.

The short-run estimate shows significant negative effect of national saving rate and financial deepening on the real sector. There is also evidence of non-significant negative effect of exchange rate and lending rate on the performance of the sector. The error correction estimate shows evidence of convergence in the system such that 81.72 per cent of the errors associated with the system are corrected over time. This indicates a high speed of adjustment and further implies that in the incidence of external shocks the system would quickly revert to its long-run steady state within the shortest possible time.

## 5.0 Summary, Conclusion and Recommendation

Evidence from the study provides empirical support for long-run relationship between financial development and real sector in Nigeria. The long-run estimate shows significant impact of exchange rate and lending rate on the operations of the real sector. However, while innovations arising from financial deregulation led to negative impact of exchange rate on the real sector, it led to positive impact of lending rate on the sector. Though financial development led to high lending rate, it promoted efficiency in allocation and utilization of financial resources, leading to higher productivity in the real sector. The study further shows non-significant impact of national saving rate on the real economy. This is an indication that innovations in the financial system have not provided the desired impetus for capital accumulation through domestic savings.

Based on the above finding, the study concludes that development of the financial system has supported real sector in Nigeria through efficiency gains from resource allocation and utilization. The study recommends a proper blend of monetary policy tools on order to achieve exchange rate stability. Since real sector operations is highly sensitive to exchange rate movements, owing to its high import content, a stable exchange is expected to enhance the operations of the sector.



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